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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,082	07/21/2003	Tetsuro Inui	14321.56	5995

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EXAMINER	
WOLDEKIDAN, HIBRET ASNAKE	

ART UNIT	PAPER NUMBER
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/624,082	INUI ET AL.	
	Examiner	Art Unit	
	Hibret A. Woldekidan	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Response to Arguments

1. Examiner acknowledges receipt of Applicant's amendments, remarks, arguments received on 5/28/2008. Claims 1-19 have been amended. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7, 9-15, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooi et al. (6,925,262) in view of Morin et al. (US 2003/0161580).

Considering claim 1 Ooi discloses a method of monitoring a dispersion on an optical fiber in a wavelength division multiplexing optical system **(See Col. 1 lines 19-21 and 37-42, Col. 2 lines 46-51 i.e. a method of monitoring dispersion on an optical transmission system using a dispersion monitor)** in which a transmission distance is fixed (**any optical fiber has a specific transmission distance)**, said method comprising the steps of: extracting two or more of wavelength channels 1 to n from the transmission optical fiber**(See Col. 23 lines 27-42 i.e. a tunable optical filter for extracting signals)**; and monitoring dispersions of the extracted wavelength

channels**(See Col. 2 lines 40-55, Col. 23 lines 27-42 i.e. monitoring dispersions of the extracted or filtered signals)**.

Ooi does not explicitly disclose a dispersion slope changes with respect to temperature changes.

Morin teaches a dispersion slope changes with respect to temperature changes **(See Paragraph 2,95 i.e. a dispersion slope changes with a change in temperature)**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Ooi, and have a dispersion slope changes with respect to temperature changes, as taught by Morin, thus providing an efficient transmission system by evaluating and compensating the dispersion on the optical transmission system, as discussed by Morin **(Paragraph 9)**.

Considering claim 2 Ooi discloses the method according to claim 1, wherein the step of monitoring the dispersions comprises the steps of: measuring a first dispersion value in the extracted wavelength channels 1 to n (wavelength: λ_{mon1} to λ_{monn}) at a certain temperature T_1(°C) **(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. measuring dispersion according to change in temperature in a range of wavelength)**; measuring a second dispersion value in the wavelength channels 1 to n at a certain other temperature T T_2(°C) **(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. measuring dispersion according to change in temperature in a range of wavelength)**; providing dispersion variation amounts ΔD_{mon1} to ΔD_{monn} in the extracted wavelength channels 1 to n from a difference between the measured first dispersion value and the

measured second dispersion value **(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. measuring dispersion according to change in temperature in a range of wavelength and determine the dispersion value)**; and providing a dispersion variation amount at an arbitrary wavelength (λ) based on the provided dispersion variation amounts ΔD_{mon1} to ΔD_{monn}**(See Ooi Col. 5 lines 45-53, Col. 6 lines 21-28 i.e. providing a dispersion variation of an arbitrary wavelength or all channel).**

Considering claim 3 Ooi discloses the method according to claim 2, wherein the n is 2 and the step of providing the dispersion variation amount calculates a dispersion variation amount $\Delta D(\lambda)$ in an arbitrary wavelength (k) by the following equation.

$\Delta D(\lambda) = ((\Delta D_{mon2} - \Delta D_{mon1})/(\lambda_{mon2} - \lambda_{mon1})). (\lambda - \lambda_{mon1}) + \Delta D_{mon1}$

(See Col. 6 lines 21-29, Fig. 5, i.e. a method of determining the dispersion variation amount at any arbitrary point after determining the dispersion at least two wavelength. The above equation is equivalent to y(x)=m(x-x1) +y1, where m is the slope of a line)

Considering claim 4 Ooi discloses the method according to claim 1, wherein the step of monitoring the dispersions comprises the steps of: measuring a first dispersion value in a desired wavelength channel at a certain temperature T_1(°C) **(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. measuring dispersion according to change in temperature in a range of wavelength)**; measuring a second dispersion value in the desired wavelength channel at a certain other temperature T_2(°C) **(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. measuring dispersion according to change in temperature in a range of wavelength)**; and providing a dispersion variation amount in the desired wavelength

channel from a difference between the measured first dispersion and the measured second dispersion value**(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. providing a dispersion change amount in the wavelength channels)**.

Considering claim 5 Ooi discloses a method of compensating a temperature dependency of a dispersion slope in a wavelength division multiplexing optical transmission system**(See Ooi Col. 6 lines 31-47, Col. 5 lines 32-49, Fig. 6 i.e. variable dispersion compensator for compensating dispersion)** in which a transmission distance is fixed (**any optical fiber has a specific transmission distance)**, said method comprising the steps of: providing the dispersion variation amount $\Delta D(\lambda)$ by the method according to any one of claims 2 to 4**(See Ooi Col. 5 lines 45-53, Col. 6 lines 21-28 i.e. providing a dispersion variation of an arbitrary wavelength or all channel)**; and compensating the temperature dependency of the dispersion slope by using the provided dispersion variation amount $\Delta D\lambda$**(See Ooi Col. 6 lines 31-47, Col. 5 lines 32-49, Fig. 6 i.e. variable dispersion compensator for compensating dispersion)**.

Ooi does not explicitly disclose a dispersion slope changes with respect to temperature changes.

Morin teaches a dispersion slope changes with respect to temperature changes **(See Paragraph 95 i.e. a dispersion slope changes with a change in temperature)**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Ooi, and have a dispersion slope changes with respect to temperature changes, as taught by Morin, thus providing an

efficient transmission system by evaluating and compensating the dispersion on the optical transmission system, as discussed by Morin **(Paragraph 9)**.

Considering 9 and 17 Ooi teaches the method according to claim 6, wherein the step of compensating the dispersion is carried out by using one or more tunable dispersion equalizers with a filter **(See Ooi Col. 6 lines 33-47, Fig. 6 i.e a dispersion compensator using a tunable filter)**.

Considering claim 12 Ooi discloses a dispersion monitoring apparatus for monitoring a dispersion on an optical fiber in a wavelength division multiplexing optical transmission system**(See Ooi Col. 2 lines 40-55, Col. 6 lines 21-40, Col. 23 lines 27-42 i.e. a method of monitoring a dispersion on a transmission system using a dispersion monitor** in which a transmission distance is fixed (**any optical fiber has a specific transmission distance)**, said dispersion monitoring apparatus comprising: extracting means for extracting two or more of wavelength channels from the transmission optical fiber**(See Col. 23 lines 27-42 i.e. a tunable optical filter for extracting signals)**; and monitoring means for monitoring dispersions of the extracted wavelength channels**(See Col. 2 lines 40-55, Col. 23 lines 27-42 i.e. monitoring dispersions of the extracted or filtered signals)**.

Ooi does not explicitly disclose a dispersion slope changes with respect to temperature changes.

Morin teaches a dispersion slope changes with respect to temperature changes **(See Paragraph 95 i.e. a dispersion slope changes with a change in temperature)**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Ooi, and have a dispersion slope changes with respect to temperature changes, as taught by Morin, thus providing an efficient transmission system by evaluating and compensating the dispersion on the optical transmission system, as discussed by Morin **(Paragraph 9)**.

Considering Claim 13 Ooi discloses a dispersion slope temperature dependency compensating apparatus For compensating a temperature dependency of a dispersion slope in a wavelength division multiplexing optical transmission system **(See Col. 2 lines 10-13 , Col. 5 lines 32-41, i.e. a temperature dependency dispersion compensating apparatus)** in which a transmission distance is fixed (**any optical fiber has a given fixed transmission distance)**, said dispersion slope temperature dependency compensating apparatus **(See Col. 2 lines 10-13 i.e. dispersion compensating apparatus)** comprising: monitoring means For monitoring dispersions of two or more of wavelength channels on a transmission optical fiber**(See Col. 6 lines 7-13 i.e. dispersion monitor for monitoring two or more channels)**; and compensating means for compensating a wavelength dependency of the temperature dependency of the dispersion in an arbitrary wavelength channel by using the monitored dispersions **(See Col. 10 lines 41-53, fig. 17 i.e. dispersion compensators(40) for compensating arbitrarily wavelength channels received from the demultiplexer(110))**.

Ooi does not explicitly disclose a dispersion slope changes with respect to temperature changes.

Morin teaches a dispersion slope changes with respect to temperature changes **(See Paragraph 95 i.e. a dispersion slope changes with a change in temperature)**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Ooi, and have a dispersion slope changes with respect to temperature changes, as taught by Morin, thus providing an efficient transmission system by evaluating and compensating the dispersion on the optical transmission system, as discussed by Morin **(Paragraph 9)**.

Considering Claims 6 and 14 Ooi discloses the step of compensating the temperature dependency of the dispersion slope comprises the steps of : dividing a signal light on the transmission optical fiber to one or more wavelength channel groups constituted by at least one wavelength channel**(See Ooi Col. 10 lines 41-53, fig. 17 i.e. a demultiplexer(110) for dividing the incoming signal light in a group of channels)**; and compensating the dispersion in accordance with each of the divided one or more wavelength channel groups **(See Ooi Col. 10 lines 41-53, fig. 17 i.e. dispersion compensators(40) for compensating the group of divided channels received from the demultiplexer(110))**.

Considering Claims 7 and 15 Ooi discloses the step of compensating the temperature dependency of the dispersion slope summarizingly compensates a wavelength dependency of the temperature dependency of the dispersion in all of bandwidths in a wavelength division multiplexing optical transmission system **(See Ooi Col. 10 lines 41-53, fig. 17 i.e. each of the demultiplexed signals being compensated using dispersion compensators(40))**

Considering claim 11 Ooi and Morin disclose the step of compensating the temperature dependency of the dispersion slope comprises the step of: providing a temperature change in a dispersion compensating optical fiber installed at an optical node **(See Morin: Paragraph 80, 95 i.e. providing a temperature change to the dispersion compensating optical fiber(DCF))**.

Considering Claims 19 Ooi and Morin disclose the dispersion slope temperature dependency compensating apparatus according to claim 15, wherein said compensating means comprises: a dispersion compensating optical fiber installed in an optical node**(See Morin: Paragraph 80 i.e. installing a dispersion compensating optical fiber for compensating the dispersion of the transmission)**; and means for providing a temperature change to the dispersion compensating optical fiber**(See Morin: Paragraph 80 i.e. providing a temperature change to the dispersion compensator)**.

3. Claims 8,16,10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooi et al. (6,925,262) in view of in view of Morin et al. (US 2003/0161580) further in view of Lin (6,396,982)

Considering Claims 8 and 16 Ooi and Morin do not specifically disclose the step of compensating the dispersion is carried out by using one or more tunable dispersion equalizers with a fiber Bragg grating.

Lin teaches the step of compensating the dispersion is carried out by using one or more tunable dispersion equalizers with a fiber Bragg grating **(See Lin Col. 3 lines**

64-67 and lines 1-7 i.e. compensating dispersion using one or more tunable dispersion equalizer with a fiber Bragg gratings).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Ooi and Morin, and have the step of compensating the dispersion is carried out by using one or more tunable dispersion equalizers with a fiber Bragg grating, as taught by Lin, thus providing an accurate compensating method by using a device that control over and under compensation, as discussed by Lin **(Col. 3 lines 18-23)**.

Considering Claims 10 and 18 Ooi and Morin do not specifically disclose the step of compensating the temperature dependency of the dispersion slope is carried out by using one or more tunable dispersion equalizers with a fiber Bragg grating

Lin teaches the step of compensating the temperature dependency of the dispersion slope is carried out by using one or more tunable dispersion equalizers with a fiber Bragg grating**(See Lin Col. 3 lines 64-67 and lines 1-7 i.e. compensating dispersion using one or more tunable dispersion equalizer with a fiber Bragg gratings)**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Ooi and Morin, and have the step of compensating the temperature dependency of the dispersion slope to be carried out by using one or more tunable dispersion equalizers with a fiber Bragg grating as discussed in Claims 8 and 16.

Conclusions

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HIBRET A. WOLDEKIDAN whose telephone number is (571)270-5145. The examiner can normally be reached on Monday to Thursday from 8:00 a.m. - 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571)272-3078 . The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. A. W./

Examiner, Art Unit 2613

/Kenneth N Vanderpuye/

Supervisory Patent Examiner, Art Unit 2613